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|---|
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15

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. 09/606,042 | Applicant(s) AIN ET AL. | |
|---|---|---|---|
| | Examiner Stephen L. Rawlings, Ph.D. | Art Unit 1642 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *07 March 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-5,7-14 and 16-19* is/are pending in the application.

4a) Of the above claim(s) *17-19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-14 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-5,7-14 and 16-19* are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

1. The amendment filed September 5, 2001 in Paper No. 8 is acknowledged and has been entered. Claims 6 and 15 have been canceled. Claims 1, 7, 8, 10, 12, 13, and 16 have been amended.

2. The response filed December 6, 2001 in Paper No. 10 is acknowledged and has been entered.

3. Claims 1-5, 7-14, and 16-19 are pending in the application. Claims 17-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a non-elected invention, there being no allowable generic or linking claim.

4. Claims 1-5, 7-14, and 16 are currently under prosecution.

### *Grounds of Claim Rejections Withdrawn*

5. Any grounds of rejection not specifically reiterated below have been rendered moot by Applicants' amendment and have been withdrawn, or have been withdrawn upon consideration of Applicants' remarks.

### *Grounds of Claim Rejections Maintained and Reply to Applicants' Remarks*

### *Claim Rejections - 35 USC § 112*

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-5, 7-14, and 16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for inducing the re-expression of the previously silenced endogenous gene encoding human sodium/iodide

symporter in the human thyroid typical papillary carcinoma cell lines, including KAK-5, KAK-10 and NPA'87, and in the human benign follicular adenoma cell line KAK-1, said method comprising a step of administering 5-azacytidine, sodium butyrate, or phenylacetate to the cell line does not reasonably provide enablement for a method for inducing the re-expression of any previously silenced endogenous or exogenous gene encoding a therapeutic response element in any cancerous cell, wherein any demethylating or differentiating agent is administered to the cell for the reasons set forth in the previous Office Action mailed May 9, 2001 (Paper No. 6).

Claim 16 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for restoring iodide transport to the thyroid typical papillary carcinoma cell line NPA'87, said method comprising a step of administering 5-azacytidine to transcriptionally activate the expression of the previously methylation-silenced gene encoding the human sodium/iodide symporter does not reasonably provide enablement for a method for restoring iodide transport to any dedifferentiated thyroid cancer cell, said method comprising a step of administering any demethylating agent to transcriptionally activate the expression of any gene encoding a sodium/iodide symporter for the reasons set forth in the previous Office Action mailed May 9, 2001 (Paper No. 6).

Applicants have traversed the grounds of these rejections under 35 USC § 112, first paragraph, asserting that the amendment to the claims has rendered these grounds of rejection moot. Applicants have cited statements made in the previous Office Action that are believed to be contradictory. Applicants have stated that a reference cited in the previous Office Action "relates to an issue that is not addressed by the present disclosure" and contend that in contrast to the teachings of this reference, "[t]he present invention [...] relates to restoring expression of the hNIS gene in instances where the level of NIS mRNA is diminished" (Paper No. 8, page 5, paragraph 1). Applicants have asserted, "it would not require extensive experimentation to determine the optimal concentration within the given range at which the agent induces re-expression of the NIS gene without being toxic to the cell" (Paper No. 8, page 6, paragraph 1). Since the specification cites "the reference of Shimura" (Paper No. 8, page 6, paragraph 2),

Applicants have asserted that the claimed invention, wherein the expression of a gene encoding an exogenous therapeutic agent is restored, is enabled by the Applicants' disclosure. Applicants have remarked that the "general tenor of the rejection" appears "to question the general utility of the claimed method" (Paper No. 10, page 2, paragraph 2). Applicants "submit that the sum total of these objections would not raise a sufficient doubt in the mind of the hypothetical person of skill in the art sufficient for such a person to question the asserted utility" (Paper No. 10, page 3, paragraph 2). Applicants have contended that the reading of claim 16 broadens the scope of the claim "well beyond its intended scope" (Paper No. 10, page 3, paragraph 3). Nevertheless, Applicants have asserted that given the benefit of Applicants' disclosure, the skilled artisan "would have all the ammunition needed to determine whether a putative patient would be a good candidate for the claimed therapeutic method" (Paper No. 10, page 4, paragraph 1). Applicants have intonated that an unfair standard has been used to examine the sufficiency of Applicants' disclosure to enable the use of the claimed invention under 35 USC § 112, first paragraph. Applicants have objected to the statement made in the previous Office Action that "it makes little sense to treat a patient diagnosed with thyroid cancer with an agent that causes the further production of thyroid tumors"; Applicants have argued that antitumor agents, such as paclitaxel are routinely administered to patients diagnosed with cancer, despite the fact that the agents are cytotoxic. Finally, Applicants have asserted, "it is not necessary that all embodiments embraced by the claims be operative" (Paper No. 10, page 9, paragraph 2).

In general reply to Applicants' remarks, the amendment to the claims has not diminished the scope of the claims to the extent that would be necessary to make the amount of guidance, direction, and exemplification disclosed in the specification reasonably commensurate therewith. For the reasons stated in the previous Office Action, the skilled artisan would not accept Applicants' assertion that the claimed invention could be practiced with a reasonable expectation of success without the need to first perform additional, undue experimentation. Upon consideration of the high degree of unpredictability in the art, which is underscored by the teachings of the references cited in the previous Office Action, and upon further consideration of the

state of the art and the level of skill in the art at the time the application was filed, the preponderance of evidence suggests that given only benefit of Applicants' disclosure, the skilled artisan could not practice the claimed invention with a reasonable expectation of success without need to perform additional, undue experimentation.

In reply to Applicants remark suggesting that elements of the previous Office Action are contradictory, since the Office Action stated, "the specification provides no exemplification of the claimed method wherein a deblocking agent other than a demethylating agent is used", but also stated that the specification "teaches that treatment of human thyroid papillary carcinoma cell lines [...] and the human benign follicular adenoma cell line [...] with 5-azacytidine, sodium butyrate, or phenylacetate restores the expression of the previously silenced [gene] encoding the human sodium/iodide symporter". In reply to Applicants' remark, the first cited statement was made because formerly claim 7 defined dimethylsulfoxide, sodium butyrate, phenylacetate, or 5-azacytidine, the only deblocking agents that Applicants have demonstrated can be used to restore expression of the gene in certain cell lines, as "demethylating agents". For this reason, despite the fact that some of these agents are not conventionally known as demethylating agents, it was stated that Applicants have not disclosed a working example in which a deblocking agent other than a demethylating agent is used. Accordingly, the statements in the previous Office Action to which Applicants have referred in their remark are not contradictory. In further reply to Applicants' remark, it is Applicants' disclosure that appears contradictory. As stated in the previous Office Action, while Applicants have demonstrated that 5-azacytidine can be used to restore expression of the gene in each of four cell lines, namely KAK-5, KAK-10, NPA'87, and KAK-1, the specification also discloses that neither 5-azacytidine, sodium butyrate, nor phenylacetate can be used to restore expression of the gene in every cell line tested. Moreover, neither sodium butyrate nor phenylacetate can be used to restore expression of the gene in the follicular carcinoma cell line tested, and only one or the other of these agents, not both, has been shown to be capable of restoring the expression of the gene in the papillary carcinoma cell lines tested. Therefore, although the previous Office Action states that the specification "teaches that

treatment of human thyroid papillary carcinoma cell lines [...] and the human benign follicular adenoma cell line [...] with 5-azacytidine, sodium butyrate, or phenylacetate restores the expression of the previously silenced [gene] encoding the human sodium/iodide symporter", it is evident that none of the agents can be used to restore the expression of the gene encoding the sodium/iodide symporter in any human cancerous thyroid cell, as the claims would require.

With particular regard to Applicants' remarks that address the grounds of rejection of claim 16, the specification teaches that only 5-azacytidine is capable of restoring iodide transport to a cell, and then only to a single dedifferentiated thyroid cancer cell line, namely NPA'87. Furthermore, the specification teaches that none of the agents, including 5-azacytidine are capable of restoring iodide transport in anaplastic thyroid cancer. Moreover, the specification teaches that there are numerous mechanisms by which the expression of a gene encoding the sodium/iodide symporter may be repressed or silenced in dedifferentiated thyroid cancer cells. Therefore, the skilled artisan would not have a reasonable expectation of success in practicing the claimed method commensurate in scope with the claims, because Applicants have demonstrated that the claimed method cannot be used to restore iodide transport to all dedifferentiated thyroid cancer cells. In addition, given the benefit of Applicants' disclosure, the skilled artisan would not reasonably expect to restore iodide transport to all dedifferentiated thyroid cancer cells because a mechanism other than hypermethylation may have caused the gene's lack of expression, and administering a demethylating agent in such cases would not predictably restore the expression of the gene.

Contrary to Applicants' assertions, Applicants' disclosure is not sufficient to meet the requirements set forth under 35 USC § 112, first paragraph, because the amount of guidance, direction, and exemplification is not reasonably commensurate in scope with the claims, and given only the benefit of Applicants' disclosure, the skilled artisan could not reasonably expect to successfully practice the claimed invention without need to first perform additional, undue experimentation. For example, the claim encompasses a method wherein a patient is administered a demethylating agent. Contrary to

Applicants' remarks, this interpretation of the claim is not unduly broad. While this particular embodiment of the invention is not exemplified in the specification, it has been noted that the specification fails to provide guidance that would serve to instruct the clinician how patients that might be expected to benefit from the treatment can be selected. For the reasons stated in the paragraph above, it is evident that the invention cannot be used with a predictable degree of success, nor would the skilled artisan expect to successfully use the claimed invention to treat every patient, since only some types of cancer are affected by demethylating or differentiating agents, and only some demethylating or differentiating agents are effective. The evident lack of predictability associated with the practice of the claimed invention necessitates the disclosure of an amount of guidance, direction, and exemplification that is reasonably commensurate in scope with the claims. Applicants are not required to seek the approval of the FDA to secure the patentability of the claimed invention, nor are the results of an appropriately controlled clinical trial required, but Applicants are required to meet the requirements set forth under 35 USC § 112, first paragraph. Accordingly, Applicants are required to provide factual evidence that supports their assertion that the skilled artisan, given only the benefit of Applicants' disclosure, would be able to use the claimed invention with a reasonable expectation of success without the need to first perform additional, undue experimentation. Contrary to Applicants' remarks, because the limitations that would hinder the successful use of the claimed method are obvious or evidently already appreciated in the art, the skilled artisan would be enabled by the present disclosure to use the claimed invention with a reasonable expectation of success without the need to perform additional, undue experimentation. Moreover, the specification has disclosed evidence of non-working embodiments that are encompassed by the present claims.

In addition, while paclitaxel is cytotoxic, its efficacy has been well established; a thorough analysis of the costs and benefits of administering paclitaxel to patients diagnosed with cancer has demonstrated its clinical utility and despite its evident cytotoxicity, paclitaxel does not cause cancer. In contrast, the efficacy of the administering a demethylating or differentiating agent to treat a patient diagnosed with thyroid cancer in practicing the claimed invention has not been established.

Finally, contrary to Applicants' remarks, the claims are not limited to a method for restoring the expression of the gene encoding the sodium/iodide symporter in instances where the level of mRNA encoding the symporter is diminished. For that matter, the claims are not limited to a method for restoring the expression of the gene encoding the sodium/iodide symporter, *per se*, as claim 1 is generic. Furthermore, the claims do not exclude a method for restoring the expression of a gene encoding a therapeutic response element, or for restoring sodium/iodide transport in a cell in which RNA encoding the element is over-expressed. The demonstration that particular embodiments of the invention can be used to induce the re-expression of the gene encoding the sodium/iodide symporter or to restore iodide transport in one or a few cell lines does not constitute substantial evidence that the invention can be used to induce the re-expression of any other gene, even if the other gene has been silenced by methylation, or to restore iodide transport in any thyroid cancer cell. The teachings of the references cited in the previous Office Action or in the specification support this conclusion.

Applicants' arguments have been carefully considered but in view of the preponderance of evidence have not been found persuasive. Accordingly, the rejection of the claims under 35 USC § 112, first paragraph for the reasons set forth in the previous Office Action is maintained.

8. Claims 1-5, 7-14, and 16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention for the reasons set forth in the previous Office Action mailed May 9, 2001 (Paper No. 6).

Applicants have traversed these grounds of rejection under 35 USC § 112, first paragraph arguing that the grounds of rejection have been rendered moot by the amendment, as presently the claims "encompass only thyroid-specific genes, and two sets of unblocking agents" (Paper No. 8, page 6, paragraph 3).

In reply to Applicants' arguments, the present claims still encompass a large genus of genes encoding multiple species of thyroid-specific therapeutic response elements, since there are more than one gene expressed in a thyroid-specific manner. Recitation of a limitation requiring the therapeutic response element to be "thyroid specific" is not a sufficient description to enable the skilled artisan to immediately recognize a reasonable number of the genes that are encompassed by the claims, and which can be re-expressed upon practice of the claimed method. The disclosure of a single species of a gene encoding a thyroid-specific therapeutic response element is not sufficient to reasonably convey to the skilled artisan that Applicant had possession of the claimed invention at the time application was filed.

In addition, for the reasons set forth in the previous Office Action, Applicants disclose only a single species of the vast genus of demethylating agents to which claim 16 is drawn and only three species (which appear to be highly restrictive in activity and dependent upon the cell line treated) of the even larger genus of unblocking agents, including both demethylating and differentiating agents, to which claim 1 is drawn. Given only the benefit of Applicants' disclosure, the skilled artisan could not instantly envision the vast genus of unblocking agents that are actually capable of inducing the re-expression of a previously silenced gene encoding a therapeutic response element, or of restoring active sodium/iodide transport, because Applicants have not described the features of the agents or the cells that determine whether or not a given agent is capable of doing so in a particular cell.

Accordingly, Applicants' arguments have been carefully considered but have not been found persuasive. Therefore, the rejection of the claims under 35 USC § 112, first paragraph for the reasons set forth in the previous Office Action is maintained.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-5, 7-14, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject

matter which applicant regards as the invention for the reasons set forth in the previous Office Action mailed May 9, 2001 (Paper No. 6).

Claims 1-5 and 7-14 are indefinite because claim 1 recites the phrase "blocked from expression" in line 1. While the specification defines "block" as the "inhibition [of] transcription of a gene" (page 7, lines 8-9), this definition appears to be incongruous with the ordinary meaning of the term in the art, because inhibition of gene expression is generally mediated by blocking either transcription or translation. Therefore, use of the phrase "blocked from expression" renders the claim indefinite. For the same reason, recitation of the term "unblocking agent" in lines 4 and 6 of claim 1 and also in claims 7, 8, and 10 renders the claims indefinite. Accordingly, one of ordinary skill in the art is not reasonably apprised of the metes and bounds of the invention.

Claim 16 is indefinite because the claim recites the term "a thyroid cancer cell" in line 4. The use of the term renders the claim indefinite because it cannot be ascertained whether the thyroid cancer cell that is defective in iodide transport is one of the cancer cells to which the claim refers in line 2, or a different cell. Amending claim 16 to recite the phrase, for example, "in the cancer cells that are defective in iodide transport" in line 4 can obviate this rejection.

Claim 16 is indefinite because the claim does not recite a positive process step. Amending the claim to recite the phrase, for example, "whereby iodide transport is restored to the dedifferentiated thyroid cancer cells" can obviate this rejection.

Although Applicants have remarked that the claims have been amended to obviate these grounds of rejection, it appears to the contrary, that the amendment to the claims has not done so. Therefore, the rejection of the claims under 35 USC § 112, second paragraph for the reasons stated in the previous Office Action, which have been reiterated above, is maintained.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1, 2, 4, 12, 13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmutzler, et al (*Biochemical and Biophysical Research Communications* **240**: 832-838, 1997) for the reasons set forth in the previous Office Action mailed May 9, 2001 (Paper No. 6).

Applicants have traversed these grounds of rejection under 35 USC § 102(b) arguing that the cited reference fails to teach each and every element of the claim. Furthermore, Applicants have asserted, "Schmutzler teaches away from using retinoic acid to induce iodide transport, because RA did not stimulate iodide transport in any of the cell lines that has been treated with RA" (Paper No. 8, page 11, paragraph 2).

In reply to Applicants' argument, the limitations of the claims are met by the teachings of Schmutzler, et al. None of the rejected claims require the agent to induce iodide transport.

Accordingly, Applicants' arguments have been carefully considered but not found persuasive; therefore, the rejection of the claims under 35 USC § 102(b) for the reasons set forth in the previous Office Action is maintained.

13. Claims 1, 2, 4, 12, 13, 15, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Herle, et al (*Journal of Clinical Endocrinology and Metabolism* **71**: 755-763, 1990), as evidenced by Schmutzler, et al (*Biochemical and Biophysical Research Communications* **240**: 832-838, 1997) for the reasons set forth in the previous Office Action mailed May 9, 2001 (Paper No. 6).

Applicants have traversed the grounds of this rejection under 35 USC § 102(b) arguing "Van Herle does not relate the gain of iodide transport to the re-expression of a thyroid response element" (Paper No. 8, page 11, paragraph 3). Therefore, Applicants have asserted that claim 1 cannot be anticipated by the cited reference under 35 USC § 102(b).

Applicants' arguments have been carefully considered but have not been found persuasive. For the reasons set forth in the previous Office Action, the method of the prior art is deemed the same as the method of the claims, absent a showing of any difference.

***New Grounds of Claim Rejections***

***Claim Rejections – 35 USC § 112***

14. Claims 1-5, 7-14, and 16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1 and 16 recite a limitation requiring the therapeutic response element to be "thyroid specific". However, there does not appear to be proper and sufficient antecedent basis in the specification for recitation of this limitation in the claims. Therefore, the limitation appears to constitute new matter and thereby recitation of the limitation in the claims appears to violate the written description requirement set forth under 35 USC § 112, first paragraph. This issue might be resolved, however, if Applicants were to point to particular disclosures in the specification that are believed to provide support for recitation of the limitation in the claims.

15. Claims 1-5, 7-14, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For the reasons set forth in the previous Office Action mailed May 9, 2001 (Paper No. 6), the former claims were indefinite because claim 1 and 16 recited the term "tumor specific". Although the present claims recite the term "thyroid specific" rather than "tumor specific", the present claims are indefinite for essentially the same reasons.

***Conclusion***

16. No claims are allowed.

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen L. Rawlings, Ph.D. whose telephone number is (703) 305-3008. The examiner can normally be reached on Monday-Thursday, alternate Fridays, 8:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony C. Caputa, Ph.D. can be reached on (703) 308-3995. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Stephen L. Rawlings, Ph.D.
Examiner
Art Unit 1642

slr
July 1, 2002

ANTHONY C. CAPUTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600